REMARKS

Prior to entry of this paper, Claims 1-30 were pending. Claims 1-30 were rejected. In this paper, claim 27 has been amended to correct a clerical error. No new matter has been added. Accordingly, Claims 1-30 are currently pending. No new matter has been added by way of this response. For at least the following reasons, Applicant respectfully submits that each of the presently pending claims is in condition for allowance.

Rejections under 35 U.S.C. §102(b) Based on Azimi:

Claims 1-3, 5-11, 13-24 and 26-30 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,163,183 to Azimi et al. ("Azimi").

Independent Claim 1 recites a circuit for temperature sensing including "a comparator circuit that is arranged to provide a trigger signal by comparing a reference signal to a temperature sensor signal." As described in the specification, the temperature sensor signal, for example, is designed to have a known relationship with temperature so that a temperature can be sampled. *See* Specification, p. 3, lines 15-19; p. 5, line 19. It is respectfully submitted that Azimi does not suggest or disclose the temperature sensor signal recited in Claim 1.

Azimi describes a voltage monitoring circuit having a bandgap reference voltage. As previously presented by Applicant's representative, contrary to the assertions of the Office Action, the "band gap reference voltage 22" of Azimi is not comparable to the temperature sensor signal of the presently claimed invention. One of ordinary skill in the art understands that a bandgap reference voltage is specifically designed to be independent of temperature. Bandgap reference voltage circuitry combines a proportional to absolute temperature (PTAT) voltage with a complementary to absolute temperature (CTAT) to offset each voltage's temperature dependency so that the resulting reference voltage is independent of temperature.

Further, Applicant's representative respectfully disagrees with assertions in the Office Action. In response to the Office Action's assertion that "the signal voltage that is indicative of the temperature of the bandgap," Applicant's representative points to two authorities supporting the fact that the bandgap does not output a voltage that is indicative of temperature. *See* November 12, 2008

Office Action, p. 15. *The Design of CMOS Radio-Frequency Integrated Circuits* describes a bandgap reference voltage as "the most elegant realization" of making a temperature independent reference by adding a voltage that goes up with temperature to one that goes down with temperature. *See* Thomas H. Lee, *The Design of CMOS Radio-Frequency Integrated Circuits* at 318-20 (2004). *Microelectronic Circuit Design* describes a bandgap reference as "the most common technique used to generate a precision voltage" independent of power supply voltage and temperature. *See* Richard C. Jaeger and Travis N. Blalock, *Microelectronic Circuit Design* at 1216-18 (2003).

Further, Applicant's representative respectfully submits that the Office Action improperly concludes that the circuit of Brokaw is "not used in Azimi and therefore does not have a bearing on the independence of the temperature." *See* November 12, 2008 Office Action, p. 15. This assertion is repeated in stating that the Brokaw circuit includes two transistors and Azimi has "no transistors at the input of the op amp." *See* November 12, 2008 Office Action, p. 19. Azimi merely shows the bandgap reference voltage with the symbol indicating a voltage source. There is no indication or description in Azimi regarding the specific circuitry used as the bandgap reference voltage. Accordingly, no conclusion can be drawn regarding the bandgap reference voltage. Thus, only the known and accepted meaning of a bandgap reference voltage can be applied to the bandgap reference voltage of Azimi.

Independent claims 13 and 20 recite a method and a circuit for temperature sensing, respectively, including "activating hysteresis if a temperature-sensing condition has occurred," and "ensuring that the hysteresis is automatically inactive when the circuit is powering up." It is respectfully submitted that Azimi does not suggest or disclose at least these features recited in claims 13 and 20.

Azimi merely describes a voltage monitoring circuit to provide a power fail mechanism or a battery monitor. *See* Azimi, col. 3, lines 35-49. Azimi does not suggest or even contemplate any temperature sensing. Even assuming arguendo that a bandgap exhibits a small dependency on temperature, this small dependence cannot lead to the conclusion that Azimi discloses "temperature sensing" functionality. The Office Action appears to be making an inherency argument in

concluding that a dependence results in temperature sensing functionality. However, in order to establish inherency, the feature not expressly described must ***necessarily*** be present. *See* MPEP §2112 (emphasis added). The comparator of the circuit in Azimi will only trip if the voltage condition at input 25 to the comparator is met. The tripping of the comparator is not dependent on temperature. Regardless whether the temperature is 0 degrees or 100 degrees, the comparator will only trip if the voltage condition at input 25 is met. *See* Azimi, col. 3, lines 35-55. Thus, the functionality to sense temperature is not necessarily present in Azimi's disclosure and is not inherent. Accordingly, Azimi does not suggest or disclose a "temperature sensing condition," as recited in claims 13 and 20.

Furthermore, Azimi does not suggest or disclose "activating hysteresis" and "ensuring that hysteresis is automatically inactive when the circuit is powering up." Applicant's representative respectfully disagrees with the assertions in the Office Action that Azimi's comparator senses a "temperature condition" and activates hysteresis based on that condition. The circuit of Azimi merely includes resistor 34 as a "hysteresis tolerance control." There is no suggestion that Azimi activates hysteresis or ensures that it is inactive. Azimi merely describes resistor 34 as a "hysteresis tolerance control to the comparator." *See* Azimi, col. 3, lines 60-61.

Further, with respect to claim 21, Azimi does not disclose a "comparator [that] trips when the temperature sensed by the temperature sensor signal reaches a pre-determined level." As described above, the comparator of Azimi trips for a voltage condition, but not a temperature condition.

With respect to claim 25, the Office Action asserts that a "temperature comparison is performed." *See* November 12, 2008 Office Action, p. 16. Applicant's representative respectfully disagrees. As described above, even if it is conceded that Azimi arguably shows a bandgap voltage having a temperature dependency (which Applicant's representative does not concede), the comparator of Azimi merely indicates a voltage condition at input 25. As noted above, any dependence a bandgap may have on temperature is so small that the comparator of Azimi does not perform a "temperature comparison." The comparator will only trip if the voltage condition at input 25 is met. "When the voltage at terminal 110 falls below the reference voltage from the bandgap

22, the output of the comparator 20 goes low…[w]hen power is restored such that the voltage at terminal 110 rises above the reference voltage, the output from the comparator 20 goes high." Azimi, col. 3, lines 40-48. This described operation of the comparator of Azimi will remain whether it is zero degrees or 100 degrees. The comparison is not a "temperature comparison," as asserted in the Office Action.

Further, because any temperature dependence a bandgap may exhibit is so small, the circuit of Azimi would not be able to "provide hysteresis in a range of about 2°C to about 10°C of hysteresis," as recited in claim 25. Applicant's representative also notes that the inputs to the comparator are not "temperature signals" for at least the reasons given above. Additionally, Applicant's representative respectfully submits that the Office Action's assertion that "depending on the wire and the resistance the temperature would operate in the aforementioned range" makes no sense, and requests clarification as to the meaning of the statement.

With respect to claims 26 and 28-30, the Office Action asserts that claims 26 and 28-30 include recitations regarding the "manner in which a claimed apparatus is intended to be employed," which does not "differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations." *See* November 12, 2008 Office Action, p. 12. Applicant's representative respectfully submits that claims 26 and 28-30 are method claims and not apparatus claims, and the recitation in claims 26 and 28-30 are claimed steps in a method, and not mere intended uses of a claimed apparatus. Accordingly, the Office Action's assertions regarding "intended use" limitations not having patentable weight does not apply. Further, Applicant's representative notes that the Office Action does not address this argument presented with respect to claims 26 and 28-30 in Applicant's representative's previous response.

Accordingly, for at least the reasons described above, the rejection of independent claims 1, 13, and 20, and dependent claims 2, 3, 5-11, 14-24 and 26-30, under 35 U.S.C. §102(b) based on Azimi is respectfully requested.

Rejections under 35 U.S.C. §102(b) Based on Lim:

Claims 1-3, 5-11, 13-22, 24, 26, and 28-30 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,614,857 to Lim et al. ("Lim").

Independent Claim 1 recites a circuit for temperature sensing including "a comparator circuit that is arranged to provide a trigger signal by comparing a reference signal to a temperature sensor signal." As described in the specification, the temperature sensor signal, for example, is designed to have a known relationship with temperature so that a temperature can be sampled. *See* Specification, p. 3, lines 15-19; p. 5, line 19. It is respectfully submitted that Lim does not suggest or disclose the temperature sensor signal recited in Claim 1.

Lim describes a hysteresis system with a constant threshold voltage. Contrary to the Office Action, Lim does not suggest or disclose a "temperature sensor signal," as recited in independent claim 1. In asserting that Vin2 of Lim is comparable to the "temperature sensor signal" of the presently claimed invention, the Office Action states that it is inherent in any circuit since resistance changes with temperature. Applicant's representative respectfully disagrees. Applying the logic set forth in the Office Action, any and all circuits would disclose the "temperature sensor signal" of the presently claimed invention. A component that merely exhibits some relationship to temperature does not disclose the temperature sensor signal of the presently claimed invention. There is no suggestion or disclosure in Lim regarding temperature whatsoever.

Further, Lim does not describe a gate circuit "arranged to provide an output signal," as recited in independent claim 1. The Office Action asserts that AND gate AND45 of Lim is comparable to the gate circuit of the presently claimed invention since it "provides" the signal Vout2. Applicant's representative respectfully disagrees. One of ordinary skill in the art would not understand AND gate AND45 to "provide" Vout2. Vout2 is an input to AND gate AND45 of Lim, and AND gate AND45 merely provides the gate to Q45, which is connected to an input of comparator OP20. AND gate AND 45 is merely used in the circuitry which provides the reference voltage of comparator OP20, and does not "provide" Vout2.

Additionally, Applicant's representative respectfully submits that the assertions in the Office Action that "the temperature of resistor R11 increases as the current through it increases

because the resistance is dependent on resistivity which is dependent on temperature" and "[t]he temperature of resistor R11 increases as the current through it increase thereby providing a higher voltage Vin2" are nonsensical. *See* November 12, 2008 Office Action, pp. 17-18. It is known in the art that some heat may be given off in the dissipation of power as current flows through a resistor, and that resistivity has some relationship to temperature. However, the causal relationships in the above statements make no sense. First, the temperature of the resistor R11 would not increase because of its dependence resistivity. Second, an increase in temperature would not necessarily result in a higher voltage Vin2. There is no basis in circuits to support either statement.

Independent claims 13 and 20 recite a method and a circuit for temperature sensing, respectively, including "activating hysteresis if a temperature-sensing condition has occurred," and "ensuring that the hysteresis is automatically inactive when the circuit is powering up." It is respectfully submitted that Lim does not suggest or disclose at least these features of the presently claimed invention.

Lim merely describes a hysteresis system with a constant threshold voltage. Lim does not suggest or even contemplate any temperature sensing. As described above, the mere existence of a relationship between temperature and properties of a component does not disclose the sensing of temperature. Accordingly, Lim does not suggest or disclose a "temperature sensing condition," as recited in claims 13 and 20.

Furthermore, Lim does not suggest or disclose "activating hysteresis" and "ensuring that hysteresis is automatically inactive when the circuit is powering up." Lim merely describes a hysteresis system having a constant threshold voltage. There is no description of when hysteresis is activated or inactivated.

Further, the Office Action asserts that the recitation of "when the circuit is powering up" has "interpreted when to include before the signal is powered up." *See* November 12, 2008 Office Action, p. 20. Applicant's representative respectfully disagrees. Claims 13 and 20 clearly recite "when the circuit is powering up". Thus, the recitation of "when" refers to the period of "powering up," and not the periods of time before and after. However, even if "when" is construed to include "before the signal is powered up," "when" still includes during the powering up process. Claims 13

and 20 recite "ensuring that the hysteresis is automatically inactive when the circuit is powering up," thus, even applying the interpretation of "when" to include before, the "ensuring" limitation occurs both before ***and*** during the powering up process. This is not suggested or disclosed in Lim.

With respect to claim 21, the Office Action asserts that Lim reads on the claim because "regardless when comparator trips there is an apparent level related to the tripping." *See* November 12, 2008 Office Action, p. 19. Even if this is true, claim 21 recites a temperature sensor signal reaching a pre-determined level. Accordingly, a predetermined temperature level is not a "timing relationship" as asserted in the Office Action. As shown in the timing diagrams Figures 5A-5E of Lim, the comparator of Lim is tripped regardless of temperature as long as the voltage threshold is reached. The tripping of the comparator is wholly dependent on the voltage and will not change with a change in temperature. The comparator will trip for the given voltage levels whether it is zero degrees or 100 degrees.

With respect to claim 24, the Office Action asserts that "Vin1 is based on the temperature coefficient being zero and therefore is still based on temperature." *See* November 12, 2008 Office Action, p. 19. Applicant's representative respectfully disagrees. A temperature coefficient of zero indicates no dependence on temperature. Thus, because a temperature coefficient of zero indicates no dependence on temperature, then Vin1 cannot be based on temperature.

With respect to claims 26 and 28-30, the Office Action asserts that claims 26 and 28-30 include recitations regarding the "manner in which a claimed apparatus is intended to be employed," which does not "differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations." *See* November 12, 2008 Office Action, p. 12. Applicant's representative respectfully submits that claims 26 and 28-30 are method claims and not apparatus claims, and the recitation in claims 26 and 28-30 are claimed steps in a method, and not mere intended uses of a claimed apparatus. Accordingly, the Office Action's assertions regarding "intended use" limitations not having patentable weight does not apply. Further, Applicant's representative notes that the Office Action does not address this argument presented with respect to claims 26 and 28-30 in Applicant's representative's previous response.

Accordingly, for at least the reasons described above, the rejection of independent claims 1, 13, and 20, and dependent claims 2, 3, 5-11, 14-24 and 26-30, under 35 U.S.C. §102(b) based on Lim is respectfully requested.

Rejections under 35 U.S.C. §103(a):

Claims 4, 12, and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Azimi in view of U.S. Patent No. 6,417,704 to Nakajima et al. ("Nakajima"). Each of these rejections is respectfully traversed.

Nakajima describes a power-on circuit and a resetting method.

Claims 4, 12, and 25 depend from claim 1, and Nakajima does not cure the deficiencies of Azimi. Thus, for at least the reasons above, it is respectfully submitted that a combination of Azimi and Nakajima, to the extent proper, does not render claims 4, 12, and 25 obvious. Withdrawal of the rejection of claims 4, 12, and 25 under 35 U.S.C. §103(a) based on Azimi and Nakajima is respectfully requested.

Previous Arguments:

Further, Applicant's representative notes that arguments presented in the August 5, 2008 Response were not addressed in the November 12, 2008 Office Action. Specifically, the argument regarding that bandgap reference circuits are "not dependent on or correlative with any bandgap," but are known to output a constant voltage substantially independent of temperature and are only named a bandgap voltage because they can have "an output voltage with a value that is close to the theoretical bandgap of silicon at 0K." *See* August 5, 2008 Response, p. 7. Another argument that was not addressed was the fact that Azimi does not describe a temperature signal "proportional" to a temperature. Although the Office Action asserts that Azimi teaches temperature dependence, mere dependence is not comparable to a proportionality.

Further, Applicant's representative notes that the Office Action does not address the argument that claims 26 and 28-30 are method claims and not apparatus claims, and the recitation in claims 26 and 28-30 are claimed steps in a method, and not mere intended uses of a claimed

apparatus. Accordingly, the Office Action's assertions regarding "intended use" limitations not having patentable weight does not apply.

Finally, Applicant's representative notes that the Office Action does not address the arguments refuting the Advisory Action's assertion that a resistor is comparable to the heater recited in claims 26 and 28-30. Even if it can be argued that a resistor is a heater, none of the reference suggest or disclose "activating" a resistor, as recited in claims 26 and 28-30.

CONCLUSION

It is respectfully submitted that each of the presently pending claims (Claims 1-30) is in condition for allowance and notification to that effect is requested. Examiner is invited to contact the Applicant's representative at the below-listed telephone number if it is believed that the prosecution of this application may be assisted thereby. Although only certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentable. Applicant reserves the right to raise these arguments in the future.

Dated: March 6, 2009

Respectfully submitted,

By _____
Matthew M. Gaffney, Registration No.: 46,717

DARBY & DARBY P.C.
P.O. Box 770
Church Street Station
New York, New York 10008-0770
(206) 262-8910
(212) 527-7701 (Fax)
Attorney For Applicants